

The practice of using the Internet, which is accessible throughout the world, as a comprehensive information network as well as for ordering or making use of products or services which are made available on it is known.

5 The processing of the actual payment transaction after the order, i.e., after the initiation of the payment procedure, is problematic.

Singleton, Cash on the Wirehead, BYTE, page 71, volume 20, No. 6, dated June 1995, discloses a number of payment processing methods which are all based on a credit card system and in which various methods are applied for the encrypted transmission of data.

10 It also already has been proposed to additionally secure the authorization of a payment by making a supplementary confirmation by telephone necessary.

US 5,794,221 discloses a payment method using the Internet. In this publication, first an agreement is made between an Internet provider and the customer and then a corresponding provision is specified between the provider and the seller or service provider. The provider declares in this agreement that he/she will invoice the customer and accept responsibility for the settlement of payments with the seller or service provider. The provider himself/herself provides network access for the customer. The transaction information between the seller and customer is supplied simultaneously to the provider, which then performs the corresponding activities such as invoicing and passing on the received payment. The provider is paid for the use of the provider's services.

In the previously known solution it became apparent that it was an advantage if it was not necessary for the customer to have to communicate his/her account number or similar personal data to the seller, thus preventing an undesired temporary presence of this data set on the Internet which is virtually impossible to control.

However, it has become evident that in a method according to US 5,794,221, disadvantages occur in that the provider has to intervene actively into the proceedings relating to the invoicing and settlement of payment.

30 Furthermore, it is necessary for the customer to be identified with respect to the

provider, during which process it is not possible to prevent third parties being able to read and to make fraudulent use of this sensitive data about the provider.

In view of the above, an object of the present invention is to disclose a method and an apparatus for electronically processing purchasing and sales transactions, which is referred to as electronic commerce, using public communications networks, in particular the Internet, the intention being to increase security when accessing a network and making use of services via the network without having to impose security-related functions on the network provider.

SUMMARY OF THE INVENTION

The basic idea of the present invention consists, accordingly, in ordering goods and/or services via the Internet starting from a terminal which is capable of communication and has a display or monitor, in particular a personal computer, via an access node, and electronically paying for these goods and/or services, the terminal which is capable of communication processing the order data transfer via a switching office.

After confirmation of the order, the access to the Internet starting from the switching office is at least briefly interrupted and a menu-prompted billing access to the switching office of the telecommunications network operator is set and/or set up. With the menu-prompted billing procedure, it is then possible to register, with respect to billing, the order within the respective telephone account file relating to the terminal, and later settle payment via the customary processing of the services for the use of the telecommunications network.

It is a defining feature that before the order data or billing data is registered in the telephone account file, a PIN (Personal Identification Number) input together with an authenticity check is carried out.

As a result of the at least brief disabling of the access between the Internet and the switching office, unauthorized access for a third party which has monitored the ordering process can be prevented. Of course, it is also possible to allow the link to exist online and block external access only within the framework which is referred to as a firewall function.

The order data and billing data are then stored, for example, in a separate memory area of the telephone account file, it then being possible to register supplementary data such as information on the date and/or the specific type of goods or service.

5 The order data and billing data can be stored in coded form. It is also conceivable to provide for the data to be output on a customary telephone bill in encrypted form; for example, by reference to product or services codes.

10 Confirmation protocols, which are transferred to the service provider via the Internet in a fashion known per se are created in an automated fashion from the registered and stored order data and billing data. The confirmation protocols do not, however, contain any security-related information; for example, the PIN, a credit card account number or the like.

15 A data link is established to the telephone data-registering computer, which is generally located in the switching office, is established in the respective switching office after a menu item has been called and authenticated via the personal computer. It is possible also to activate the menu during the online state of the personal computer and access the Internet so that the user is capable, even when accessing a homepage of a service provider, to activate a menu bar and/or open the appropriate menu in order to, if desired, bring about the payment processing, during 20 which care is automatically taken to ensure that the Internet access is interrupted or the firewall protection measure is activated at the relevant moment.

25 In order to increase security, the order data is firstly loaded onto the terminal, namely the personal computer, via the Internet, and the order is registered at the service provider end. Then, in a separate link, the set of billing data associated with the order is transmitted from the terminal of the memory to the switching office and registered there in a debit file after authenticity checking. The registration of the accounts receivable is then transferred to the service provider together with an identifier as a confirmation.

30 At the device end, a terminal which is capable of communication and has a display (personal computer) is provided for carrying out the method, the terminal

being connected to a switching office via the telephone network. The switching office sets up access to an Internet access computer (provider) via an appropriate data line.

The switching office contains an internode module, the internode module
5 converting incoming telephone data when data is transferred between the Internet
access computer and the terminal into a format which is suitable for display on, or
storage in, the personal computer or terminal, but also transforming data records
derived from the Internet data transfer into a switching-office format. The
internode module creates, as it were, a symbiosis between telephone traffic and
10 digital data transfer.

Additional features and advantages of the present invention are described in,
and will be apparent from, the following Detailed Description of the Invention and
Figures.

BRIEF DESCRIPTION OF THE FIGURES

15 Figure 1 shows a basic view of the access to the Internet starting from a
personal computer in connection with the teachings of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The terminal, in particular a PC 1, is connected to the public telephone
network via a suitable modem or an interface. In the relevant supply area, at least
20 one switching office 3 is provided which both sets up call-number-selected links
and registers call times for later billing.

A link is established via the switching office 3 to an Internet access
computer 4 which is operated by what is referred to as a provider.

25 The Internet access provider 4 then permits access to the Internet which is
illustrated symbolically by the reference symbol 5.

In the switching office there is an internode module 6 which makes it
possible for services of conventional telephone systems to be provided with the
possibilities of Internet-enabled personal computers. The internode makes it
possible for network operators and users to use their existing infrastructure such as
30 leads or switching systems in a systematic fashion for the World Wide Web.

In particular, in the exemplary embodiment, the order data transfer is processed via the switching office when Internet services are made use of. Such use can be, for example, the ordering of goods or services.

After confirmation of the order, the access from the switching office 3 via
5 the access computer 4, or the access to the Internet, is briefly interrupted or disabled
for incoming data in order to optimize security. In the personal computer 1, a
menu-prompted billing access to the switching office 3 is then established and/or
set up in order then to register, with respect to billing, the order within a
corresponding terminal-related telephone account file or to process payment via the
10 customary processing of the services for the use of the telecommunications
networks; for example, the call data registration.

Of course, for reasons of security, it is also expedient here to carry out
authenticity checking of the user with respect to the personal computer by, for
example, inputting and interrogating a PIN. Furthermore, for later verification
15 purposes, the order data and billing data should be stored in a separate memory area
of the telephone account file in the switching office or in a computer located there.

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The user who has made use of the Internet service via the personal computer
1, then receives, for example with his/her monthly telephone bill, a request to pay
for the goods ordered or services provided.

20 In the method described, the possibility of personal data such as credit card
numbers, account information or the like being conducted over the Internet is ruled
out. The particular problem with the Internet is that data and information are held
and buffered for a relatively long time on various node computers, and also at the
providers, and that as a result of the channeling of a multiplicity of information
25 there is always the risk of third parties interrogating data in a selected fashion and
making fraudulent use of it.

The order data and billing data which are stored in the switching office 3 or
a computer located there are then used for automatically creating a confirmation
protocol which is communicated to the service provider via the Internet. This
30 communication can take place directly after the order but also at times of little

traffic so that only low supplementary costs are incurred for the operator of the public telephone network 2.

In a further exemplary embodiment, a menu item or a menu is activated by the personal computer 1 after the call and authentication confirmation, and a link is 5 established to the switching office; i.e., a data link to the telephone data-registering computer. Of course, the menu also can be activated during the online state of the personal computer and instantaneous access to the Internet, the transmission of order data with the consequent production of billing data being, however, not performed until after the Internet link has been disconnected.

10 To do this, the order data first can be loaded onto the personal computer 1 over the Internet, and the order registered at the service provider end. The billing data associated with the order is then transmitted, with a separate link, from the personal computer 1 to the switching office 3 and registered in a debit file after further authenticity checking. The confirmation of the accounts receivable 15 registration with the service provider via an identifier is also carried out separately.

The switching-office-end operator, for example the telephone company, performs the settlement of the payment to the service provider or supplier after receipt of payment has been indicated.

20 The present solution provides the advantage that security-related personal data no longer has to be transferred over the public Internet, providing significant advantages in terms of security during payment transactions and the trust of users and customers in the payment system.

25 Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.